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Abstract Title:

**Effects of Data Quality on the Characterization of Aerosol Properties
from Multiple Sensors**

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ABSTRACT

Cross-comparison of aerosol properties between ground-based and spaceborne measurements is an important validation technique that helps to investigate the uncertainties of aerosol products acquired using spaceborne sensors. However, it has been shown that even minor differences in the cross-characterization procedure may significantly impact the results of such validation. Of particular consideration is the quality assurance / quality control (QA/QC) information – an auxiliary data indicating a “confidence” level (e.g., Bad, Fair, Good, Excellent, etc.) conferred by the retrieval algorithms on the produced data. Depending on the treatment of available QA/QC information, a cross-characterization procedure has the potential of filtering out invalid data points, such as uncertain or erroneous retrievals, which tend to reduce the credibility of such comparisons. However, under certain circumstances, even high QA/QC values may not fully guarantee the quality of the data. For example, retrievals in proximity of a cloud might be particularly perplexing for an aerosol retrieval algorithm, resulting in an invalid data that, nonetheless, could be assigned a high QA/QC confidence.

In this presentation, we will study the effects of several QA/QC parameters on cross-characterization of aerosol properties between the data acquired by multiple spaceborne sensors. We will utilize the Multi-sensor Aerosol Products Sampling System (MAPSS) that provides a consistent platform for multi-sensor comparison, including collocation with measurements acquired by the ground-based Aerosol Robotic Network (AERONET). The multi-sensor spaceborne data analyzed include those acquired by the Terra-MODIS, Aqua-MODIS, Terra-MISR, Aura-OMI, Parasol-POLDER, and Calipso-CALIOP satellite instruments.